

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims 1-4 and ADD new claim 27 in accordance with the following:

1. (CURRENTLY AMENDED) ~~A device~~An apparatus for checking user identification, comprising:

~~a calculation unit which calculates a check value by applying a user-specific formula to at least one randomly-generated number; and~~an arithmetic-formula storing unit configured to store user-defined arithmetic formulas associated with respective users, the arithmetic formulas defining calculation of variables that are assigned to respective digit positions arranged on a display screen;

~~a matching unit which checks if the check value matches a user-entered value that is entered by a user in response to said at least one randomly-generated number being presented to the user;~~a display unit configured to display random digits at the respective digit positions arranged on the display screen when a user logs in; and

~~wherein the user-specific formula includes one or more elements which are, respectively, either an operand or an operator, and all of said one or more elements are predetermined user-specific information except for the at least one randomly-generated number;~~a matching unit configured to retrieve from said arithmetic-formula storing unit one of the arithmetic formulas corresponding to a user identifier in response to the user input of the user identifier and an identification-purpose number, to calculate a value of said one of the arithmetic formulas by assigning the random digits to said one of the arithmetic formulas, to compare the value with the identification-purpose number, and to authenticate the user in response to a match therebetween.

2. (CURRENTLY AMENDED) ~~The device~~apparatus as claimed in claim 1, wherein ~~said calculation~~matching unit outputs a fixedutilizes a predetermined number as said value in response to determination that said value is impossible to calculate based on the random digits and said one of the arithmetic formulas,~~as the check value, if the user-specific formula consists of the fixed number.~~

3. (CURRENTLY AMENDED) The ~~device~~apparatus as claimed in claim 1, wherein the variables include information about a date and time at which an identification process is performed, ~~user-specific formula includes a variable that is an indication of a time at which said calculation unit calculates the check value.~~

4. (CURRENTLY AMENDED) ~~The device as claimed in claim 1~~An apparatus for checking user identification, further comprising:

~~a control data unit which stores therein user IDs and user-specific formulas associated with respective user IDs~~a user-authentication card configured to store a user-defined arithmetic formula, the arithmetic formula defining calculation of variables that are assigned to respective digit positions arranged on a display screen;

~~a selection unit which selects one of the user-specific formulas from said control data unit in response to a user ID of said user~~a display unit configured to display random digits at the respective digit positions arranged on the display screen when a user logs in; and

~~a random number generating unit which generates said at least one randomly generated number~~a matching unit configured to calculate a value of the arithmetic formula by assigning the random digits to the arithmetic formula stored in said user-authentication card, to compare the value with an identification-purpose number entered by the user, and to authenticate the user in response to a match therebetween.

5. (PREVIOUSLY PRESENTED) The device as claimed in claim 4, further comprising a registration/updating unit which updates one of the user-specific formulas in the control-data unit with a user-entered formula only if the user entering the user-entered formula proves knowledge of said one of the user-specific formulas by entering said one of the user-specific formulas.

6. (PREVIOUSLY PRESENTED) A method of checking user identification, comprising:

calculating a check value by applying a user-specific formula to at least one randomly generated number; and

checking if the check value matches a user-entered value that is entered by a user in response to said at least one randomly generated number being presented to the user, wherein the user-specific formula includes one or more elements which, respectively, are either an

operand or an operator, and all of said one or more elements are predetermined user-specific information except for the at least one randomly generated number.

7. (PREVIOUSLY PRESENTED) The method as claimed in claim 6, wherein said calculating of the check value comprises outputting a fixed number, as the check value, if the user-specific formula consists of the fixed number.

8. (PREVIOUSLY PRESENTED) The method as claimed in claim 6, wherein the user-specific formula includes a variable that is an indication of a time at which said calculating of the check value calculates the check value.

9. (PREVIOUSLY PRESENTED) The method as claimed in claim 6, further comprising:

storing user IDs and user-specific formulas associated with respective user IDs in a data storage;

selecting one of the user-specific formulas from the data storage in response to a user ID of the user; and

generating said at least one randomly generated number.

10. (PREVIOUSLY PRESENTED) The method as claimed in claim 9, further comprising updating one of the user-specific formulas in the data storage with a user-entered formula only if the user entering the user-entered formula proves a knowledge of said one of the user-specific formulas by entering said one of the user-specific formulas.

11. (PREVIOUSLY PRESENTED) A computer-readable medium having a program embodied therein to cause a computer to check user identification, said program comprising:

a calculation code unit which calculates a check value by applying a user-specific formula to at least one randomly generated number; and

a matching code unit which checks if the check value matches a user-entered value that is entered by a user in response to said at least one randomly generated number being presented to the user, wherein the user-specific formula includes one or more elements which, respectively, are either an operand or an operator, and all of said one or more elements are predetermined user-specific information except for the at least one randomly generated number.

12. (PREVIOUSLY PRESENTED) The computer-readable medium as claimed in claim 11, wherein said calculation code unit outputs a fixed number, as the check value, if the user-specific formula consists of the fixed number.

13. (ORIGINAL) The computer-readable medium as claimed in claim 11, wherein the user-specific formula includes a variable that is an indication of a time at which said calculation code unit calculates the check value.

14. (PREVIOUSLY PRESENTED) The computer-readable medium as claimed in claim 11, wherein said program further comprises:

a registration/updating code unit which stores user IDs and user-specific formulas associated with respective user IDs in a data storage;

a selection code unit which selects one of the user-specific formulas from said data storage in response to a user ID of said user; and

a random-number generating code unit which generates said at least one randomly generated number.

15. (PREVIOUSLY PRESENTED) The computer-readable medium as claimed in claim 14, wherein said registration/updating code unit updates one of the user-specific formulas in the data storage with a user-entered formula only if the user entering the user-entered formula proves a knowledge of said one of the user-specific formulas by entering said one of the user-specific formulas.

16. (PREVIOUSLY PRESENTED) The apparatus as claimed in claim 1, wherein when the user enters a wrong user-entered value, the user is allowed to enter a new user-entered value in response to at least one new randomly generated number being presented to the user.

17. (PREVIOUSLY PRESENTED) The method as claimed in claim 6, wherein when the user enters a wrong user-entered value, the user is allowed to enter a new user-entered value in response to at least one new randomly generated number being presented to the user.

18. (PREVIOUSLY PRESENTED) The computer-readable medium as claimed in claim 11, wherein when the user enters a wrong user-entered value, the user is allowed to enter

a new user-entered value in response to at least one new randomly generated number being presented to the user.

19. (CANCELED)

20. (CANCELED)

21. (CANCELED)

22. (CANCELED)

23. (CANCELED)

24. (PREVIOUSLY PRESENTED) A device to check user identification, comprising:
a processing unit to calculate a calculated value by applying a user-specific formula to one random number and to determine whether a user entered value matches the calculated value by presenting the random number to the user, the user-specific formula having elements which are, respectively, one of an operand or an operator, and each of the elements being user-specific.

25. (PREVIOUSLY PRESENTED) A method of checking user identification, comprising:
calculating a calculated value by applying a user-specific formula to one random number;
and
determining whether a user entered value matches the calculated value by presenting the random number to the user, the user-specific formula having elements which are, respectively, one of an operand or an operator, and each of the elements being user-specific.

26. (PREVIOUSLY PRESENTED) A computer-readable medium having a program embodied therein to cause a computer to check user identification, said program comprising:
a processing code calculating a calculated value by applying a user-specific formula to one random number and
a determining code determining whether a user entered value matches the calculated value by presenting the random number to the user, the user-specific formula having elements

which are, respectively, one of an operand or an operator, and each of the elements being user-specific.

27. (NEW) A method for verifying user identification data, comprising:
- generating and displaying an arbitrary number to a user;
 - prompting the user to apply a user-specific formula having at least one operand and at least one operator to the arbitrary number; and
 - verifying the user identification data of the user, where the user identification data of the user is verified when a calculated value generated by applying a stored user-specific formula to the arbitrary number matches a value entered by the user in response to the displaying of the arbitrary number.